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ROSS D SNYDER ESQ
DARBY & DARBY PC
707 WILSHIRE BOULEVARD
32ND FLOOR SUITE 3200
LOS ANGELES, CA 90017

EXAMINER

SWERDLOW, DANIEL

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 11/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/314,243

Applicant(s)

VERBIN ET AL.

Examiner

Daniel Swerdlow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 18 May 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-25 is/are allowed.
- 6) ☒ Claim(s) 1-5, 11-13, 17-21 and 26-32 is/are rejected.
- 7) ☒ Claim(s) 6-10 and 14-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1 through 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Balachandran et al. (US Patent 6,324,268).
3. Claim 1 claims a method for improving performance of a digital subscriber line comprising determining a status of a telephone hookswitch, determining whether retraining is indicated and determining whether power level adjustment is indicated. Balachandran discloses a digital subscriber line modem with improved throughput including determining the status of a telephone hookswitch (column 7, lines 45-46), determining whether retraining is indicated

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(column 8, lines 21-23) and determining whether power level adjustment is indicated (column 8, lines 21-23). Therefore Balachandran anticipates all elements of Claim 1.

4. Claim 2 claims the method of Claim 1 further comprising initiating a retraining routine and adjusting a power level. As stated above apropos of Claim 1, Balachandran anticipates all elements of that claim. In addition, Balachandran discloses initiating a retraining routine and adjusting a power level (column 8, lines 21-23). Therefore Balachandran anticipates all elements of Claim 2.

5. Claim 3 claims the method of Claim 2 wherein the step of determining whether retraining is indicated occurs in response to the step of determining hookswitch status. As stated above apropos of Claim 2, Balachandran anticipates all elements of that claim. In addition, Balachandran discloses initiating a retraining routine in response to a determination of voice call presence (column 8, lines 21-23) that is made by detecting hookswitch status (column 7, lines 45-46). Therefore Balachandran anticipates all elements of Claim 3.

6. Claim 4 claims the method of Claim 3 wherein the step of determining hookswitch status comprises determining whether hookswitch status has changed. As stated above apropos of Claim 3, Balachandran anticipates all elements of that claim. In addition, Balachandran discloses detection of changes in hookswitch status (column 7, lines 56-60 and 61-63). Therefore Balachandran anticipates all elements of Claim 4.

7. Claim 5 claims the method of Claim 3 further comprising determining whether a different modem configuration profile is appropriate and selecting the different modem profile. As stated above apropos of Claim 3, Balachandran anticipates all elements of that claim. In addition, Balachandran discloses determination and selection of a voice and data mode (column 9, lines

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39-45) or a data only mode (column 9, line 64 through column 10, line 2) which correspond to the different modem profiles. Therefore Balachandran anticipates all elements of Claim 5.

8. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Takatori et al. (US Patent 6,229,855). Claim 19 claims a method for reducing distortion on digital subscriber line comprising performing a channel loss measurement on the line, determining a minimum required signal level and adjusting a signal level on the line to remain above the minimum level. Takatori discloses an adaptive transmitter for digital transmission that measures cable loss between the central office and the remote site (column 2, lines 37-39), and adjusts transmit power to a value that provides acceptable signal to noise ratio (column 7, lines 12-25). Therefore, Takatori anticipates all elements of Claim 19.

9. Claims 28 through 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Nimmagadda (US Patent 6,426,961).

10. Claim 28 claims a method for controlling a modem transmission while equipment is in an off hook state comprising determining if modem transmission is allowed during an off hook state and setting a minimum power per carrier to support a minimum pre-defined data rate with a minimum predefined noise margin. Nimmagadda discloses a method for selection of mode of operation in a DSL system comprising determining if a request for data service will be put into a wait mode if voice service is in use (column 5, lines 7-11) and utilizing a low power mode of data operation that inherently includes a minimum power level in support of a minimum data rate

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with a minimum noise margin (column 5, lines 9-11). Therefore Nimmagadda anticipates all elements of Claim 28.

11. Claim 29 claims the method of Claim 28 further comprising setting a power level for the modem to zero and waiting for an on hook transition. As stated above apropos of Claim 28, Nimmagadda anticipates all elements of that Claim. In addition, Nimmagadda discloses putting data service into a wait mode until a telephone conversation is ended. Therefore Nimmagadda anticipates all elements of Claim 29.

12. Claim 30 claims the method of Claim 29 further comprising saving the minimum power per carrier in a storage memory. As stated above apropos of Claim 29, Nimmagadda anticipates all elements of that claim. In addition the existence of low power mode inherently stores a minimum power level in a memory. Therefore, Nimmagadda anticipates all elements of Claim 30.

13. Claim 31 claims the method of Claim 30 further comprising initializing a modem. As stated above apropos of Claim 30, Nimmagadda anticipates all elements of that claim. In addition, Nimmagadda discloses initialization of a modem (column 16, lines 36-40). Therefore, Nimmagadda anticipates all elements of Claim 31.

14. Claim 32 claims the method of Claim 28 wherein the step of determining if modem transmission is allowed comprises receiving a user indication. As stated above apropos of Claim 28, Nimmagadda anticipates all elements of that claim. In addition, Nimmagadda discloses user indication of mode of data operation when voice service is in use (column 4, lines 65-67). Therefore, Nimmagadda anticipates all elements of Claim 32.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 11, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balachandran in view of Sridhar et al. (US Patent 5,347,539).

17. Claim 11 claims a method for determining whether modem retraining is indicated comprising determining a status of a telephone hookswitch and performing an echo channel measurement procedure. As stated above apropos of Claim 1, Balachandran discloses a method for determining whether modem retraining is required comprising determining hookswitch status. Therefore, Balachandran anticipates all elements of Claim 11 with the exception of performing an echo channel measurement procedure. Sridhar discloses use of an echo channel measurement procedure (column 2, lines 16-35) for determining line characteristics. It would have been obvious to one skilled in the art at the time of the invention to apply echo channel measurement as taught by Sridhar to the method taught by Balachandran for the purpose of selecting data rate.

18. Claim 12 claims the method of Claim 11 further comprising determining a channel transfer function. As stated above apropos of Claim 11, the combination of Balachandran and Sridhar meets all elements of that claim. Therefore the combination is shown to meet all elements of Claim 12 with the exception of determining a channel transfer function. In addition, Sridhar discloses estimating signal characteristics of the communications media (column 2, lines

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25-27) that corresponds to determining a channel transfer function. It would have been obvious to one skilled in the art at the time of the invention to apply estimating signal characteristics of the communications media as taught by Sridhar to the combination taught by Balachandran and Sridhar for the purpose of selecting data rate.

19. All elements of Claim 17 are comprehended by Claim 12. Therefore, Claim 17 is rejected for reasons stated above apropos of Claim 12.

20. Claims 13 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balachandran in view of Sridhar as applied to Claim 12 above, and further in view of Hamdi (US Patent 6,345,071).

21. Claim 13 claims the method of Claim 12 wherein determining hookswitch status comprises determining whether hookswitch status has changed and determining channel transfer function comprises determining whether channel transfer has changed. As stated above apropos of Claim 12, the combination of Balachandran and Sridhar meets all elements of that claim. Therefore the combination is shown to meet all elements of Claim 13 with the exception of determining hookswitch status comprising determining whether hookswitch status has changed and determining channel transfer function comprising determining whether channel transfer has changed. As stated above apropos of Claim 4, Balachandran discloses detection of changes in hookswitch status. Therefore the combination meets all elements of Claim 13 with the exception of determining channel transfer function comprising determining whether channel transfer has changed. Hamdi discloses monitoring communication characteristics on a transmission medium and retraining modems when a change in characteristics is detected (column 2, lines 30-44). It

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would have been obvious to one skilled in the art at the time of the invention to apply detection of change in characteristics of transmission medium as taught by Hamdi to the combination taught by Balachandran and Sridhar for the purpose of adapting modem parameters.

22. All elements of Claim 26 are comprehended by Claim 17 with the exception of determining if a channel response has changed. As stated above apropos of Claim 17, the combination of Balachandran and Sridhar meets all elements of that claim. Therefore, the combination meets all elements of Claim 26 with the exception of determining if a channel response has changed. As stated above apropos of Claim 13, Hamdi discloses monitoring communication characteristics on a transmission medium and retraining modems when a change in characteristics is detected (column 2, lines 30-44). It would have been obvious to one skilled in the art at the time of the invention to apply detection of change in characteristics of transmission medium as taught by Hamdi to the combination taught by Balachandran and Sridhar for the purpose of adapting modem parameters.

23. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Balachandran in view of Sridhar as applied to Claim 17 above, and further in view of Goldstein (US Patent 5,265,151) and further in view of Takatori, and further in view of Hamdi.

24. Claim 18 claims the method of Claim 17 wherein obtaining line quality information comprises obtaining an error rate, a noise margin and a change in noise margin. As stated above apropos of Claim 17, the combination of Balachandran and Sridhar meets all elements of that claim. Therefore, the combination meets all elements of Claim 18 with the exception of obtaining line quality information comprising obtaining an error rate, a noise margin and a

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change in noise margin. Goldstein discloses use of error rate as a measure of line quality (column 2, lines 46-49). It would have been obvious to one skilled in the art at the time of the invention to apply the use of error rate as taught by Goldstein to the combination taught by Balachandran and Sridhar for the purpose of measuring line quality. Therefore, the combination of Balachandran, Sridhar and Goldstein meets all elements of Claim 18 with the exception of obtaining line quality information comprising obtaining a noise margin and a change in noise margin. Takatori discloses use of noise margin as a measure of line quality (column 4, lines 37-40). It would have been obvious to one skilled in the art at the time of the invention to apply the use of error rate as taught by Takatori to the combination taught by Balachandran, Sridhar and Goldstein for the purpose of measuring line quality. Therefore, the combination meets all elements of Claim 18 with the exception of obtaining line quality information comprising a change in noise margin. As stated above apropos of Claim 13, Hamdi discloses monitoring communication characteristics on a transmission medium and retraining modems when a change in characteristics is detected. It would have been obvious to one skilled in the art at the time of the invention to apply detection of change in characteristics of transmission medium as taught by Hamdi to the combination taught by Balachandran, Sridhar, Goldstein and Takatori for the purpose of adapting modem parameters.

25. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takatori in view of Balachandran. Claim 20 claims the method of Claim 19 wherein signal level adjustment occurs in response to a change in hookswitch state. As stated above apropos of Claim 19, Takatori anticipates all elements of that claim. Therefore, Takatori anticipates all elements of

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Claim 20 with the exception of signal level adjustment occurring in response to a change in hookswitch state. As stated above apropos of Claim 4, Balachandran discloses adjustment of modem parameters in response to change of hookswitch state. It would have been obvious to one skilled in the art at the time of the invention to apply modem parameter adjustment in response to hookswitch state change as taught by Balachandran to the transmitter taught by Takatori for the purpose of selectively compensating for voice communications.

26. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takatori in view of Nimmagadda. Claim 21 claims the method of Claim 19 wherein the step of adjusting signal level occurs according to a user selection from among multiple signal level settings. As stated above apropos of Claim 19, Takatori anticipates all elements of that claim. Therefore, Takatori anticipates all elements of Claim 21 with the exception of adjusting signal level according to a user selection from among multiple signal level settings. Nimmagadda discloses user selection of signal level (column 5, lines 7-11; column 15, lines 62-67). It would have been obvious to one skilled in the art at the time of the invention to apply user selection of signal level as taught by Nimmagadda to the transmitter taught by Takatori for the purpose of allowing the user to make the desired tradeoff between data rate and signal degradation.

27. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takatori in view of Goldstein. Claim 27 claims a method for controlling a transmit power level of a modem comprising measuring a noise margin, counting errors during a time interval and decreasing the transmit power level. Takatori discloses an adaptive transmitter for digital transmission that

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measures a noise margin (column 4, lines 37-40), and adjusts transmit power to a value that provides acceptable signal to noise ratio (column 7, lines 12-25). Therefore, Takatori teaches all elements of Claim 27 with the exception of counting errors during a time interval. Goldstein discloses reducing power level in response to error rate (i.e., number of errors during a time interval) (column 2, lines 46-49). It would have been obvious to one skilled in the art at the time of the invention to apply error rate measurement as taught by Goldstein to the transmitter taught by Takatori for the purpose of ensuring a desired level of data throughput.

Allowable Subject Matter

28. Claims 6 through 10 and 14 through 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

29. The following is a statement of reasons for the indication of allowable subject matter:

30. Claim 6 claims the method of Claim 1 further comprising determining whether an inline filter is installed. As stated above apropos of Claim 1, Balachandran anticipates all elements of that claim. Therefore, Balachandran anticipates all elements of Claim 6 with the exception of determining whether an inline filter is installed. While prior art discloses varying the modem profile of a DSL modem according to the hook state of the POTS line that shares a loop with the DSL service, prior art fails to disclose or make obvious the detection of inline filters on the POTS devices and setting the modem profile accordingly. Therefore Claim 6 is allowable matter.

31. Claims 7 through 10 are allowable matter due to dependency on Claim 6.

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32. Claim 14 claims the method of Claim 11 wherein echo channel measurement comprises scheduling a time frame for the measurement procedure, acknowledging the scheduling, discontinuing transmission by a first modem, initiating transmission of an echo testing signal by a second modem and measuring the echo testing signal. As stated above apropos of Claim 11, the combination of Balachandran and Sridhar meets all elements of that claim. In addition, the echo testing disclosed by Sridhar includes initiating transmission of an echo testing signal and measuring the echo testing signal with one modem discontinuing transmission while the other modem initiates and measures an echo signal (column 10, lines 5-12). Therefore the combination meets all elements of Claim 14 with the exception of scheduling a time frame for the measurement procedure and acknowledging the scheduling. However, Sridhar does not disclose the scheduling and acknowledgement of scheduling for the echo measurement. As such, the prior art fails to disclose or make obvious the scheduling and acknowledgement of scheduling for the echo measurement. Therefore, Claim 14 is allowable matter.

33. Claims 15 and 16 are allowable matter due to dependency on Claim 14.

34. Claims 22 through 25 are allowed.

35. The following is an examiner's statement of reasons for allowance:

36. Claim 22 claims a method for estimating telephone hookswitch status comprising periodically initiating detection routines, determining whether a change in modem performance has occurred and characterizing the change in modem performance as an indication of change in hookswitch status. Prior art discloses a variety of methods of determining a change in hookswitch status. Ko et al. (US Patent 6,151,335) discloses detecting changes in hookswitch

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status by detecting change in line current, load impedance or channel transmission characteristic. However, Ko fails to disclose or make obvious the use of modem performance as an indication of hookswitch status. As such, the prior art fails to disclose or make obvious the characterizing the change in modem performance as an indication of change in hookswitch status. Therefore, Claim 22 is allowable matter.

37. Claim 23 claims a method for controlling a modem comprising detecting a hookswitch state and a presence of an inline filter and optimizing modem parameters based on the hookswitch state and inline filter presence. As stated above apropos of Claim 1, Balachandran discloses detecting a hookswitch state and optimizing modem parameters based on the hookswitch state. Therefore Balachandran discloses all elements of Claim 23 with the exception of detecting a presence of an inline filter and optimizing modem parameters based on the inline filter presence. As such, the prior art fails to disclose or make obvious detecting a presence of an inline filter and optimizing modem parameters based on the inline filter presence. Therefore Claim 23 is allowable.

38. Claims 24 and 25 are allowable due to dependency on Claim 23.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion


39. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ko et al. (US Patent 6,151,335) discloses detecting changes in hookswitch status by detecting change in line current, load impedance or channel transmission characteristic.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 703-305-4088. The examiner can normally be reached on Monday through Friday between 8:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forrester Isen can be reached on 703-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

ds
October 15, 2002


FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100